Remarks/Arguments

Reconsideration of this application is requested.

Extension of Time

A request for a one month extension of the period for response to the office action mailed on April 5, 2007 is enclosed. The extended period for response expires on August 5, 2007.

Claim Status

Claims 1-12 were presented. Claims 1 and 7 are amended. Claims 4 and 10 are canceled, without prejudice. Thus, claims 1-3, 5-9, 11 and 12 are pending.

Claim Rejections – Lakshman and Kidambi

Claims 1, 3, 7 and 9 are rejected under 35 USC 102(b) as anticipated by Lakshman (US 6,078,564). Claims 4 and 10 are rejected as obvious over Lakshman in view of Kidambi (US 6,424,626). In response, applicant traverses the rejections and amends claims 1 and 7 to include the subject matter of claims 4 and 10, respectively.

The present invention is directed to a system and method for transmission control protocol (TCP) acceleration. As described in paragraphs 10 and 11, when a downstream channel carries much more data than an upstream channel, and more bandwidth is available to the downstream channel than to the upstream channel, the upstream channel queue may become clogged and the transmission of acknowledgment packets (ACKs) from destination to source is delayed. This can be problematic since the source must wait for the arrival of the appropriate ACKs before sending out new data packets, thus reducing the downstream channel speed performance.

Applicant's invention solves this problem by providing a drop threshold D that determines if the queued ACK is potentially replaceable with the received ACK (see FIG. 3, step 208; paragraph 28). If a received ACK under inspection has been dropped more times than a threshold D, it is retained in the queue, while if the threshold D has not been exceeded, the queued ACK is replaced with the received

ACK (step 216). In this manner, the present invention can maintain a minimum flow of ACKs in the upstream channel to the source in order to avoid a "stretch ACK" and burstiness at the source. Thus, the present invention allows a user to configure a drop threshold D to choose between performance gains and capping the source burstness (see paragraph 53). Kidambi does not operate in this manner.

In FIG. 2, Kidambi discloses an ACK discarding method. A received ACK is first identified and if the received ACK is represented in a state table, an active flag bit is checked (step 14). If the active bit is set for a non-duplicate ACK, the received ACK is discarded, an ACK drop counter is incremented and the drop counter value is written into a header. A user configurable drop counter threshold value is clearly not disclosed. Thus, Kidambi simply teaches an incremental drop counter. Applicant submits that the mere disclosure of a drop counter does not teach or suggest a configurable drop threshold value. Furthermore, Kidambi's received ACK is dropped based on an active flag bit instead of applicant's drop threshold value.

The present invention, by contrast, requires a queued ACK to be replaced with an incoming ACK only when a drop count of the queued ACK has not yet exceeded a drop threshold value. Claim 1, for example, is amended to recite:

> *...wherein the oldest queued acknowledgment packet is replaced only if a drop count of the oldest queued acknowledgment packet has not yet exceeded a configurable drop threshold value...*

Claim 7 is amended in similar fashion. Lakshman does not remedy the deficiencies of Kidambi. Since Lakshman and Kidambi do not disclose or suggest each and every feature of claims 1 and 7, those claims and claims 2, 3, 5, 6, 8, 9, 11 and 12 dependent thereon are not obvious over Lakshman and Kidambi. The rejections under 35 USC 102(b) and 103(a) should be withdrawn.

Claim Rejections – Packer and Li

Dependent claims 2 and 8 are rejected under 35 USC 103(a) as obvious over Lakshman in view of Packer (US 6,741,563). Dependent claims 5, 6, 11 and 12 are

rejected as obvious over Lakshman in view of Li (US 6,741,555). Packer is cited for disclosing an ACK sequence number comparison and does not remedy the deficiencies of Lakshman and Kidambi as discussed above with respect to claims 1 and 7. Li is cited for teaching an explicit congestion notification (ECN) flag and a selected acknowledgement (SACK) packet and is similarly deficient. Since Lakshman, Packer and Li do not teach or suggest each and every limitation of claims 2, 5, 6, 8, 11 and 12, those claims are not obvious over Lakshman, Packer and Li. The rejections under 35 USC 103(a) should be withdrawn.

Conclusion

This application is now in condition for allowance. The Examiner is invited to telephone the undersigned to resolve any issues that remain after entry of this amendment. Any fees due with this response may be charged to our Deposit Account No. 50-1314.

Respectfully submitted,
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